Listing of Claims

- 1. (Original) Method of segmenting a three-dimensional structure from a three-dimensional data record, containing in particular medical data values, comprising the steps of:
- a) providing a three-dimensional, deformable model whose surface area is formed by a network of meshes, which connect together points of the network on the surface area of the model, the meshes being divided into groups and each group being allocated a structure function,
- b) arranging the model at the position in the three-dimensional data record in which the structure to be segmented is located,
- c) determining one candidate point for each mesh with the aid of the structure function of the group to which the mesh concerned belongs,
- d) recalculating the points of the network of the model on the basis of the candidate points found,
- e) repeating steps c) and d), taking the newly calculated points of the network into account, as long as no termination criterion is met.
- 2. (Original) The method as claimed in Claim 1, step a) comprising the following steps:
- providing a three-dimensional, deformable model whose surface area is formed by a network of meshes, which connect together points of the network on the surface area of the model,
- comparing each mesh with each adjacent, neighbouring mesh with the aid of a similarity criterion,
- gathering together into groups neighbouring meshes which are similar in accordance with the similarity criterion,
 - assigning a structure function to each group.

- 3. (Original) The method as claimed in Claim 1, step a) comprising the following steps:
- providing a three-dimensional, deformable model in each case in a plurality of data sets, all the models having the same number of meshes and the meshes in each model having the same neighbourhood relationships,
- gathering together the meshes of all the models into groups,
- assigning the meshes with the same neighbourhood relationships to the group in which those meshes are contained most frequently,
- assigning one structure function to each group,
- taking the average of the models of the three-dimensional data sets in order to determine a deformable model.
- 4. (Currently Amended) The method as claimed in Claim 1, eharacterised by wherein the fact that, in step c), from a set of points, that point is selected as the candidate point of a mesh for which the structure function exhibits an extreme, especially a maximum.
- 5. (Currently Amended) The method as claimed in Claim 1, characterised by wherein the fact that, in step c), a candidate point of a mesh is found in that position on a normal of the surface area enclosed by the mesh at which the structure function exhibits an extremum, especially a maximum.
- 6. (Currently Amended) The method as claimed in Claim 1, characterised by wherein the fact that the value of the structure function in a particular position in the three-dimensional data record is a measure of the probability that that particular position is located on a surface area of the structure to be segmented.
- 7. (Currently Amended) The method as claimed in Claim 1, characterised by wherein the fact that, in step d), the points of the network are recalculated, while minimising a weighted sum of external and internal energy.

- 8. (Original) An image processing device for performing the method of Claim 1 with
- a memory unit for storing at least one deformable model whose surface area is formed by a network with meshes connecting points of the network on the surface area of the model, and for storing at least one three-dimensional data record, containing in particular medical data values,
- an image reproduction unit for reproducing a structure to be segmented, or already segmented, and the at least one deformable model,
- a calculator unit for recalculating the points of the network of the at least one model,
- an arrangement unit for arranging the model, at the position in the threedimensional data record at which the structure to be segmented is located,
 - a control unit for controlling the memory unit, the image reproduction unit, the calculator unit and the arrangement unit in accordance with the following steps:
 - a) providing a three-dimensional, deformable model whose surface area is formed by a network of meshes, which connect together points of the network on the surface area of the model, the meshes being divided into groups and each group being allocated a structure function,
 - b) arranging the model at the position in the three-dimensional data record in which the structure to be segmented is located,
 - c) determining one candidate point for each mesh with the aid of the structure function of the group to which the mesh concerned belongs,
 - d) recalculating the points of the network of the model on the basis of the candidate points found,
 - e) repeating steps c) and d), taking the newly calculated points of the network into account, as long as no termination criterion is met.

- 9. (Original) A computer program for a control unit for controlling a memory unit, an image reproduction unit, a calculator unit and an arrangement unit of an image processing device for carrying out the method of Claim 1 in accordance with the following steps:
- a) providing a three-dimensional, deformable model whose surface area is formed by a network of meshes, which connect together the points of the network on the surface area of the model, the meshes being divided into groups and each group having a structure function,
- b) arranging the model at the position in the three-dimensional data record in which the structure to be segmented is located,
- c) determining one candidate point for each mesh with the aid of the structure function of the group to which the mesh concerned belongs,
- d) recalculating the points of the network of the model on the basis of the candidate points found,
- e) repeating steps c) and d), taking the newly calculated points of the network into account, as long as no termination criterion is met.